USSR

UDC 616.895.5-085

NULLER, YU. L., and RABINOVICH, M. M., Leningrad Scientific Research Institute imeni V. M. Bekhterev and Sixth Psychiatric Hospital, Leningrad

"Comparison of Lithium Carbonate, Haloperidol, and Preparation IB-503 in the Treatment of Manic States"

Moscow, Zhurnal Nevropatologii i Psikhiatrii, No 2, 1971, pp 277-283

Abstract: Twenty-three of 50 patients with manic-depressive psychosis in the manic phase were treated with lithium carbonate (1,200 to 2,100 mg daily), 17 with haloperidol (11 to 35 mg daily) or haloperidol combined with lithium carbonate, and 10 with preparation IB-503 (200 to 450 mg daily). The condition of the patients before, during, and after therapy was judged from a rating scale assigning points to various clinical manifestations of the psychosis. Haloperidol proved to be effective in all 17 patients regardless of the severity of the manic symptoms, while lithium was effective in only those with mild or moderately severe symptoms. However, lithium was more specific with respect to regression of the manic symptoms. IB-503 was the least effective, although it was a more potent somnifacient than the other two drugs. Lithium produced only minor side effects (mild intestinal disorders), whereas haloperidol gave rise to mood swings, pronounced depression, and other disturbances.

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BINOVICH, M.S.

(4)

JPRS 58160

6 February 1973

# THE POSSIBILITY OF BUILDING PULSED ELECTRON ACCELERATORS WITH ENERGIES OF 20 TO 50 MEV

[Article by G. P. Mkheidze, M. D. Rayzer, M. S. Rabinovich, and A. A. Rukhadze; Moscow, Kratkiye Soobshcheniya po Fizike, Russian, No 3, March 1972, pp 67-74]

1. Progress of high-voltage pulsed equipment has permitted in the last decade substantially elevating the parameters of electron accelerators. Beams with a total energy of several megajoules and a power of $10^{13}$ to $10^{14}$ watts per pulse are now becoming realistic. The realization of such energies and powers in electron beams opens up the prospect of their use to heat solid targets to thermonuclear temperatures [1], investigate phase transformations and obtain new materials [2]; the beams are finding applications in investigating the effect of radiation on materials and equipment [3], for turbulent heating of plasma [4], the electronic pumping of lasers [5], as an injector for accelerators, to accomplish collective methods of ion acceleration [6], etc.

The development of electron accelerators is characterized basically by a tendency to increase the beam current [7-15] (Table 1). At the same time, electron beams with somewhat smaller currents (to 100 kiloamperes), but with an electron energy in the range of 20-50 MeV, are extremely interesting for plasma and quantum electronics and nuclear physics. Such accelerators would find application for the creation of powerful plasma generators and accelerators of electromagnetic radiation of the centimeter range, based on the collective interaction of the electron beam with plasma, which is very effectively manifested at ultrarelativistic electron energies. The high efficiency of conversion of the beam energy into radiative energy, which at the indicated beam parameters can reach 10-30%, and the relative narrowness of the lines of generation of the order of $10^{-3}$ - $10^{-4}$ make such systems very promising.

[I - USSR - L]

UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--LINKING OF POLARIZATION TRACES WITH THOSE OF ACOUSTIC STIMULI AT
THE LEVEL OF MOTOR CORTEX UNITS -U-

AUTHOR-(02)-KOPYTOVA, F.V., RABINOVICH, M.YA.

R

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL VYSSHEY NERVNOY DEYATEL'NOSTI, 1970, VOL 20, NR 1, PP
153-162

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--NEURON, ACOUSTIC EFFECT, CEREBRAL CORTEX, RABBIT, ELECTRODE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1982/0722 STEP NO--UR/0247/70/020/001/1253/0162

CIRC ACCESSION NO--AP0052181

UNCLASSIFIED

CIRC ACCESSION NO--AP0052181 UNCLASSIFIED PROCESSING DATE--18SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. REACTIONS OF 110 NEURONS OF THE MOTOR CORTEX TO ACOUSTIC STIMULI WERE INVESTIGATED IN ALERT RABBITS BEFORE, DURING AND AFTER THEIR POLARIZATION THROUGH AN EXTRACELLULAR ELECTRODE. TWO ACOUSTIC STIMULI WERE USE, ONE OF WHICH WAS REPEATEDLY APPLIED DURING THE POLARIZATING (POSITIVE), AND THE OTHER WAS USED NOT MORE THAN ONCE OR TWICE (NEGATIVE). OF THE 72 NEURONS WHICH REACTED TO BOTH STIMULI DURING THE POLARIZATION, 24 CELLS (ABOUT 33PERCENT) RESPONDED IN AFTER EFFECT ONLY TO THE POSITIVE STIMULUS. THUS, LINKING OF POLARIZATION TRACES WITH THOSE OF THE SENSORY STIMULUS TAKES PLACE AT THE NEURONAL LEVEL. IT IS ASSUMED THAT THE FORMATION OF THIS STABLE CONNECTION IS FURTHERED BY SYNAPTIC INFLUENCES OF OTHER UNITS OF THE SYSTEM INTERACTING WITH THE GIVEN CELL AS WELL AS THE ACTIVITY OF POLARIZED DENDRITES AND PRESYNAPTIC ENDINGS.

UNCLASSIFIED

USSR

UDC 621.357.8.035.4:669.14(088.8)

SHTAN'KO, V. M., LIPKIN, Ya. N., NOVIKOV, V. G., VOLKOV, Yu. M., STRIZHAK, G. K., RABINOVICH, O. Ya., ZIMOVETS, V. G., DANILOV, A. M., MATVEYEV, Yu. M., MEDNIKOV, Yu. A.

"Electrolyte for Electrochemical Polishing of Products"

USSR Author's Certificate No 306186, Filed 28/10/69, Published 21/07/71, (Translated from Referativnyy Zhurnal, Khimiya, No 3, 1972, Abstract No 3 L283 P from the Resume).

**Translation:** An electrolyte for electrochemical polishing of products, for example of stainless steel, differing in that in order to improve the quality of polishing and intensify the process, a foam suppressor is introduced to the electrolyte with the following relationship of components (in wt.%): orthophosphoric acid 30-70, $H_2SO_4$ 10-40, $H_2O$ 10-30 and above 100%. Surfactants based on peptide and polypeptide salts, 1-10 g/l, foam suppressor 0.001-1 g/l. Polymethylsiloxane liquid is used as the foam suppressor.

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USSR

UDC: 621.315.592

GERSHENZON, Ye. M., IL'IN, V. A., LITVAK-GORSKAYA, L. B., RABINOVICH, R. I., and SHAPIRO, Ye. Z.

"Dispersion of Hot Electrons in n-InSb at Low Temperatures"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1888-1894

Abstract: The purpose of this paper is to study the mechanisms of hot-electron dispersion in n-type InSb in a broad range of electric fields, and to compare the results of this study with the results of theoretical research. By so doing, the authors hope to clear up some of the mystery surrounding the dispersion of energy and impulse of hot electrons in InSb at temperatures much below the limiting frequency of the optical phonon. They investigate the dependence of their specimens' conductivity, Hall constant, and particle mobility, on the intensity of the electric field at temperatures of 1.3-4.2° K and at field intensities ranging from 1-400 V/cm. The specimens, whose parameters are given in a table, were made with markedly different concentrations of impurities and compensations. Curves are given for the dependences noted above.

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USSR

UDC: 621.315.592

- GERSHENZON, Ye. M., IL'IN, V. A., LITVAK-GORSKAYA, L. B., RABINOVICH, R. I., and SHAPIRO, Ye. Z.

"Determining Separate Concentrations of Impurities in Type $A^{III}B^{V}$ Compounds by Electron Heating"

Leningrad, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1906-1910

Abstract: A method is developed for determining separate concentrations of impurities in compounds of the $A^{III}B^{V}$ type from the magnitude of the hot electron mobility and the dependence of the mobility on the electric field intensity. Earlier papers have shown that at low temperatures in such compounds, there is a range of electric field intensities in which this dependence is weak. Two possibilities that may then arise are considered: the carrier concentration is such that tht electron-electron interaction may be neglected; the electron concentration is high and the electron-electron interaction must be taken into account. Nomograms for finding the total concentration of impurities from the experimental value of the mobility are given. Also given is the diagram and explanation of a device for verifying this method in the case of some n-InSb and n-GaAs specimens. The authors express their thanks to

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USSR

GERHSENZON, Ye. M., et al, Fizika i tekhnika poluprovodnikov, No 10, 1972, pp 1906-1910 UDC: 621.315.592

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V. S. Ivleva, A. N. Telegin, and L. D. Sobanova for preparing the N-InSb and epitaxial n-GaAs films for the verifying tests.

2/2

UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--EFFECT OF THE CAPTURE MECHANISM ON THE CYCLOTRON RESONANCE LINE
SHAPE OF HOT CARRIERS -U-
AUTHOR-(04)-GERSHENZON, YE.M., GUSINSKIY, E.N., RABINOVICH, R.I., SOINA,
N.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(3), 739-44

R

DATE PUBLISHED---------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, THERMAL EFFECT, CARRIER DENSITY, LINE
WIDTH, ACOUSTIC SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1986 STEP NO--UR/0181/70/012/003/0739/0744

CIRC ACCESSION NO--AP0105060

UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE LINE SHAPE WAS STUDIED OF CYCLOTRON RESONANCE OF HOT CARRIERS UNDER CONDITIONS WHEN THEIR CONCN. VARIES ON HEATING. CASES WERE ANALYZED OF CONST. AND VARIABLE (WITH HEATING) CONCNS. OF RECOMBINATION CENTERS. THE ENERGY DEPENDENCE OF THE CAPTURE COEFF. ALPHA(EPSILON) CONSIDERABLY AFFECTS THE SHAPE OF THE CYCLOTRON RESONANCE LINE AND THE DEPENDENCE OF ITS HALFWIDTH ON THE POWER. EXPRESSIONS ARE OBTAINED FOR THE SHAPE OF THE CYCLOTRON RESONANCE LINE UNDER THE CONDITIONS OF ACOUSTICAL SCATTERING AND ALPHA(EPSILON) VARIES DIRECTLY AS EPSILON PRIME K NEGATIVE. IN THIS CASE, THE DEPENDENCE OF THE HALFWIDTH OF THE LINE ON THE POWER IS THE SAME AS AT CONST. CONCN. OF CARRIERS. DATA ARE GIVEN FROM EXPTS. ON HEATING OF HOLES IN PURE GE WHEN THEIR CONCN. CHANGES WITH THE POWER.

FACILITY: MOSK. GOS. PEDAGOG. INST. IM. LENINA, MOSCOW, USSR.

UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CYCLOTRON RESONANCE DURING THE ENERGY SCATTERING OF HOT ELECTRONS ON OPTICAL PHONONS -U-

AUTHOR--RABINOVICH, R.I.

R

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(2), 621-3

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--CYCLOTRON RESONANCE, ELECTRON SCATTERING, ELECTRON PHONON INTERACTION, ELECTRON TEMPERATURE

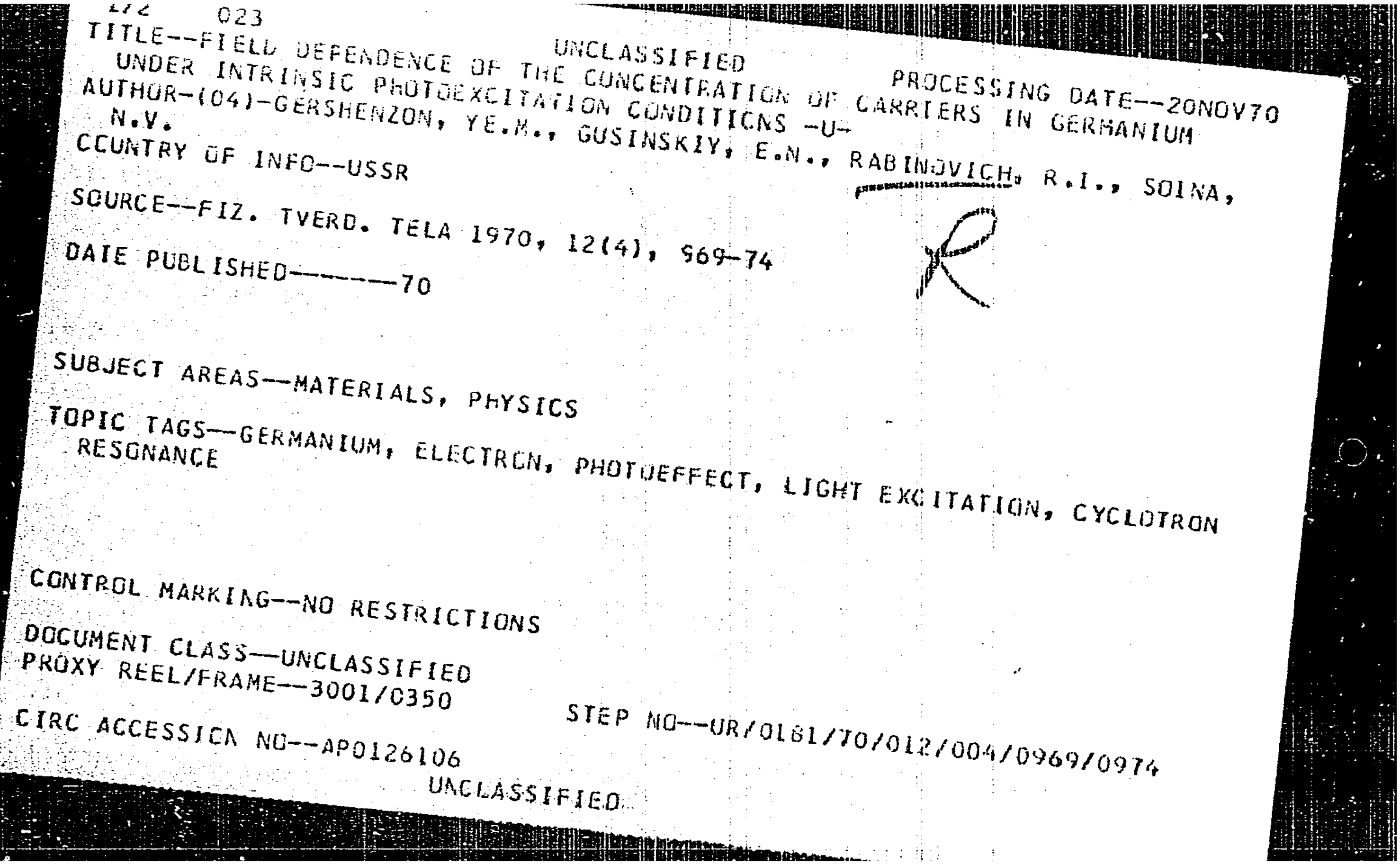
CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1972

CIRC ACCESSION NO--AP0105046 STEP NO--UR/0181/70/012/002/0621/0623

UNCLASSIFIED

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CALCN. WAS CARRIED OUT FOR THE FORMS OF THE LINE OF CYCLOTRON RESONANCE. UNDER THE CONDITIONS CONSIDERED, THE RELAXATION TIME OF PASSIVE ELECTRONS, TAU SUB1, IS MUCH LONGER THAN THAT OF ACTIVE ELECTRONS, TAU SUB2. FACILITY: MOSK. GOS. PEDAGOG. INST. IM. LENINA, MOSCOW, USSR.



1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--FIELD DEPENDENCE OF THE CONCENTRATION OF CARRIERS IN GERMANIUM UNDER INTRINSIC PHOTOEXCITATION CONDITIONS -U-

AUTHOR-(04)-GERSHENZON, YE.M., GUSINSKIY, E.N., RABINOVICH, R.I., SOINA, N.V.

R

COUNTRY OF INFO--USSR

SOURCE--FIZ. TVERD. TELA 1970, 12(4), 969-74

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--GERMANIUM, ELECTRON, PHOTOEFFECT, LIGHT EXCITATION, CYCLOTRON RESONANCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/0350 STEP NO--UR/0181/70/012/004/0969/0974

CIRC ACCESSION NO--AP0126106

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70
CIRC ACCESSION NO--AP0126106
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESULTS ARE GIVEN AND DISCUSSED OF THE MEASUREMENTS OF THE FIELD DEPENDENCE OF CONCN. OF HOT ELECTRONS AND HOLES IN PURE GE AT 4.2DEGREESK. THE MEASUREMENTS WERE CARRIED OUT BY THE METHOD OF CYCLOTRON RESONANCE, WHICH ALLOWS ONE TO STUDY THE SEP. FIELD DEPENDENCES OF THE CONCN. OF ELECTRONS AND HOLES. THE CARRIER CONCN. NECESSARY FOR THE MEASUREMENTS WAS CREATED BY LIGHT WITH WAVELENGTHS LAMBDA IS LARGER THAN OR EQUAL TO 1.65 MU (VOL. EXCITATION) AND LAMBDA EQUALS 0.8 MU (SURFACE EXCITATION). THE CONCN. OF ELECTRONS IS INDEPENDENT OF THE ABSORBED MICROWAVE POWER IN THE SURFACE AS WELL AS VOL. EXCITATION. THE CONCN. OF HOLES IS INDEPENDENT OF THE POWER IN THE SURFACE EXCITATION AND INCREASES CONSIDERABLY WITH THE POWER IN THE VOL. EXCITATION. DEPENDENCES OBSD. IN THE VOL. EXCITATION CAN BE EXPLAINED BY ASSUMING THAT RECOMBINATION OF CARRIERS TAKES PLACE ON THE DEEP LYING IMPURITIES. THE ENERGY DEPENDENCE OF THE COEFF. OF CAPTURE OF HOLES ON DEEP CENTERS EXHIBITS CORRESPONDENCE WITH THE LAX THEORY FOR H LIKE IMPURITIES. FACILITY: MOSK. GOS. PEDAGOG. INST. IM. LENINA, MOSCOW, USSR.

UNCLASSIFIED

USSR

UDC 621.357.7

GERENROT, YU. YE., RABINOVICH, S. M., and MIKRINICH, N. A.

"Internal Stresses in Superthin Films of Electrolytic Copper"

Moscow, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 713-716

Abstract: This article contains the results of a study of internal stresses of copper films 100-1,000 Å thick as a function of current density and composition of the sulfate electrolyte. The internal stresses were measured by the flexible cathode method using a specially designed, highly sensitive instrument. The experimental procedure is described, and the results are presented in the form of graphs and tables showing the cathode deflection as a function of deposition time and the scheme for adjustment of it considering the postelectrolysis phenomena, the internal stresses in copper coatings 1,000 Å thick as a function of current density in electrolytes made up of $H_2SO_4$ at 50 g/liter, $CuSO_4 \cdot 5H_2O$ at 50, 100, 5 and 200 g/liter, and $CS(NH_2)_2$ at 0, $10^{-4}$ and $10^{-3}$ moles/liter.

It is noted that the unusually high stresses (100-130 $kg/mm^2$) detected in thin copper films during low deposition rates greatly exceed the stress-rupture strength of metallurgical copper (20-25 $kg/mm^2$). The stress-rupture

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GERENROT, YU. YU., et al, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 713-716

strength of vacuum copper condensate 100-700 Å thick reaches 170 $kg/mm^2$, and it is entirely possible that galvanic deposits of the indicated thicknesses have at least equal strength. Then the internal stresses arising during electrocrystallization of copper turn out to be commensurate with the stress-rupture strength. It is concluded that the study of stresses occurring in galvanic deposits at low current densities gives reliable information about the interaction of the organic substances in the electrolyte with the surface of the electrode and the mechanism of occurrence of internal stresses.

In galvanic films of identical thickness (100 Å and more) obtained with various current densities (0.005-0.5 $a/inch^2$), the process rate of the postelectrolysis processes is approximately the same. This can be seen from the curves recorded after halting electrolysis. Within the limits of the studied thicknesses (100-1,000 Å) corrected by taking into account the postelectrolysis phenomena, the dependence of the cathode deflection on electrolysis time is rectilinear. The internal compressive stresses for low current densities are unusually high for copper. With an increase in current density the compressive stresses drop sharply. With a further increase in the current density, tensile

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GERENROT, YU. YU., et al, Zashchita Metallov, Vol 6, No 6, Nov-Dec 70, pp 713-716

stresses occur. The higher the concentration of copper sulfate in the solution, the lower the stresses of both signs and the more the sign of the stresses in the deposits varies with greater current density. Simultaneously with this variation, the postelectrolysis phenomena in the copper films cease, and in deposits with tensile stresses no postelectrolysis phenomena are observed.

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USSR

ZAMFIR, G.N., ZOLOTAREV, V.F., RABINOVICH, TS.M. UDC 621.383.82

"Scanistor With Discrete Base"

Uch. zap. Ul'yanovsk. gos. ped. in-ta (Scientific Annals Of Ul'yanovskiy State Pedagogical Institute), 1970, 24, Issue 3, Part 1, pp 106-147 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B306)

Translation: The design of a line element of a silicon scanistor with a discrete [diskretnyy] base is described and the special features of its operation are considered. An analysis is conducted of the voltampere and load characteristics of the scanistor. The effect of the time lag of the diode elements on the parameters of the scanistor is considered. The specific resolution of the scanistor equals 44 lines to 1 mm, and the sensitivity threshold is $\sim 1.5 \cdot 10^{-13}$ watt. 14 ref. I.B.

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USSR

ZAMFIR, G.N., ZOLOTAREV, V.F., RABINOVICH, TS. M. UDC 621.383-182.7

"Scanistor With Continuous Base"

Uch. zap. Ul'yanovsk. gos. ped. in-t (Scientific Annals Of Ul'yanovskiy State Pedagogical Institute), 1970, 24, Issue 3, Part 1, pp 83-105 (from RZh--Elektronika i yeye primeneniye, No 3, March 1971, Abstract No 3B305)

Translation: An equivalent circuit is considered and a method is proposed for computation of a scanistor with a continuous [nepreryvnyy] base. An experimental scanistor is described which possesses a threshold sensitivity $\sim 10^{-13}$ watt. 11 ref. I.B.

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USSR

UDC 532

ABOVSKIY, V. A., RABINOVICH, V. A., KANEVSKAYA, L. S.

"Thermodynamic Properties of Liquid Neon"

V sb. Teplofiz. svoystva veshchestv pri nizk. temperaturakh (Thermophysical Properties of Substances at Low Temperatures -- Collection of Works), Moscow, 1972, pp 44-51 (from RZh-Fizika, No 1, Jan 73, Abstract No 1Ye149)

Translation: The equation for the entropy of a dense system of spherically symmetrical particles is obtained considering the first quantum correction. The equation is suitable for calculating thermodynamic properties of liquid Ne at high densities over wide pressure and temperature ranges. 16 ref. Authors' abstract.

1/1

TLE--MANUFACTURE OF GALVANIC CELLS -U-

THOR-(05)-NABIULIN, F.K., BUZOVA, Z.M., GERTYK, E.M., MARFIN, B.V.,
RABINOVICH, V.A.

UNTRY OF INFO--USSR

URCE--U.S. 3,506,750

R

TE PUBLISHED--14APR70

BJECT AREAS--ENERGY CONVERSION (NON-PROPULSIVE)

PIC TAGS--PATENT, GEL, BATTERY ELECTROLYTE, BATTERY ELECTRODE,
ELECTROLYTIC CELL, VALVE

NTROL MARKING--NO RESTRICTIONS

CUMENT CLASS--UNCLASSIFIED

OXY REEL/FRAME--1990/1798 STEP NO--US/0000/70/000/000/0000/0000

RC ACCESSION NO--AA0109759

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--16OCT70

RC ACCESSION NO--AA0109759

BSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PREGELLED ELECTROLYTE AND NEG. ELECTRODE MATERIAL ARE SIMULATNEOUSLY PRESSED THROUGH A FUNNEL SHAPED FEEDER INTO THE POS. ELECTRODE VESSEL BY A PISTON AND VALVE ARRANGEMENT. AT THE SAME TIME, A CURRENT COLLECTOR IS FED THROUGH THE CENTRAL PORTION OF THE FEEDER. BY MOLDING THE ION CONDUCTING DIAGRAM AND THE NEG. ELECTRODE IN THE CELL CASING, INTERNAL SHORTING BETWEEN THE CELL ELECTRODES IS ELIMINATED.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--20NOV70

1/2 026

TITLE--EQUATION OF STATE FOR A MONATOMIC LIQUID AT HIGH DENSITIES -U-

AUTHOR-(02)-RABINOVICH, V.A., ABOVSKIY, V.A.

R

COUNTRY OF INFO--USSR

SOURCE--TEPLOFIZ. VYS. TEMP. 1970, 8(1), 46-54

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EQUATION OF STATE, FLUID STATE, ARGON, APPLIED MATHEMATICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0554 STEP NO--UR/0294/70/008/001/0046/0054

NO--AP0121226 CLASSIFIED

UNCLASSIFIED

PROCESSING DATE--20NOV70

2/2 026

CIRC ACCESSION NO--AP0121226

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE CELL THEORY OF LIQS. AN EQUATION IS DERIVED FOR CALCG. PRESSURE VOL. TEMP. RELATIONS OF MONAT. GASES AND LIQS. AT HIGH DS. (D. GREATER THAN OR EQUAL TO 2.2 CRIT. D.): (SHOWN ON MICROFICHE.), WHERE A EQUALS CV PRIMETWO THIRDS MINUS V, B EQUALS DV PRIMETWO THIRDS, AND X IN T MINUS A-B (P IS THE PRESSURE AT THE TEMP. T (DEGREESK), P SUBS AND T SUBS ARE THE PRESSURE AND TEMP. AT B.P. (OR M.P.) AT THE GIVEN D., V IS THE SP. VOL.). THE COEFFS. C AND D CAN BE CALCD. FROM TWO EXPTL. DATA. THE ACCURACY OF CALCD. VALUES FOR AR IS COMAPRABLE WITH THE EXPTL. ONE. GENERALIZED RELATIONS ARE DERIVED TAKING INTO ACCOUNT WEAK QUANTUM EFFECTS.

UNCLASSIFIED

AA0045189

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

243194 FIBRE OPTICS MEASURING DEVICE, described in No.153126, was based on the principle of optical measurement of length using a transmitting television tube and a bunch of light guides. Measurement is not as accurate as it might be, owing to physical movement effects from the test piece. The proposal describes an improvement. The diagram shows an objective lens 1 focussed on the test piece 6 (which may be hot) and passing an optical image to the bunch of light guides 2, which are closed up at the input end 4. The output end 5 is scanned by the television tube 3; the feature of the present development is the special arrangement of these flexible fibre guides into even and

AUTHORS: Rabinovich, V. A.; Sharf, Ye. M.; Punger, V. A.; Namsarayev, V. T.

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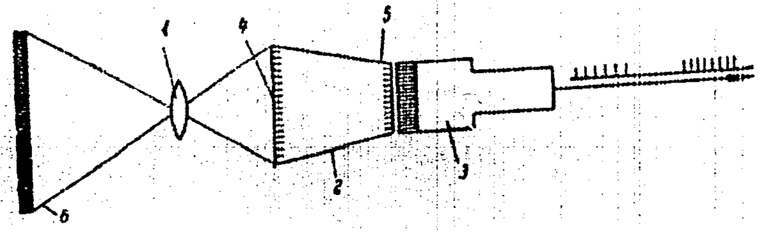
19780092

AA0045189

odd groups, as numbered at the input, so that odd numbers arrive in group A, and even in group B, of the output array. In addition they are in opposed order, as shown. The image of the hot body 6 presented to the light guides is converted by the television tube into one depending on the scanning method, but any dynamic error due to movement is only equal to the difference of the errors in each part A and B of the final image.

5.11.67 as 1195767/25-28 Add to 153126.V.A.RABINOV-ICH et al.(17.9.69) Bul 10/.5.5.69. Class 42b. Int.Cl.G 01b.



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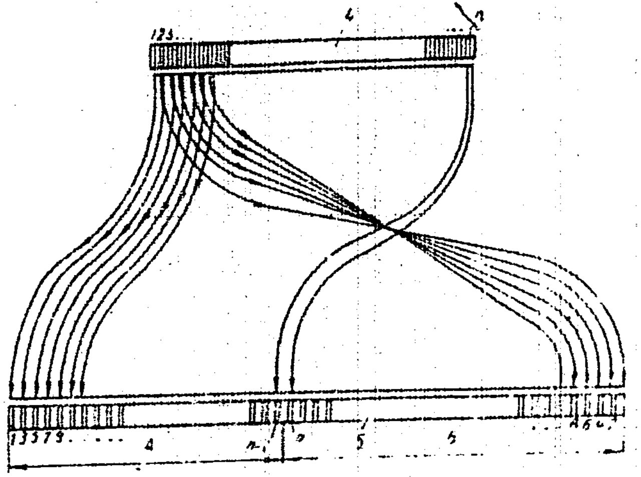
AA0045189



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19780094

UDC: 681.3

USSR

BOYKOV, V. N., KRENDEL', Yu. M., RABINOVICH, V. I., TROFIMOV, O. Ye., SHUL'TS, V. P.

"On Calculating the Accuracy of Digital Measuring Instruments"

V sb. Teoriya i praktika ispol'z. sredstv tekhn. kibernetiki. Kn. 1 (Theory and Practice in Using the Facilities of Technical Cybernetics. Book 1--collection of works), Novosibirsk, 1970(1971), pp 94-99 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V786)

Translation: The authors consider the effect which improper operation of the flip-flops and the comparison unit has on the accuracy of a digital device based on the method of binary sweep balancing. In order to explain the nature of the effect which these elements "in pure form" have on the accuracy of the device, a separate analysis is made: for instance in studying the effect of improper operation of the flip-flops, the comparison unit is first assumed to be ideal, and then real. It is assumed for the sake of definiteness that the distribution X of the measured quantity is uniform, and the average absolute value of the error is used as the cri-

USSR

BOYKOV, V. N. et al., Teoriya i praktika ispol'z. sredstv tekhn. kibernetiki. Kn. 1, Novosibirsk, 1970(1971), pp 94-99

terion of accuracy of the instrument. It is noted that all the results may be written in general form or derived in the same way for distributions X using many other metrological criteria (variance of the error, mathematical expectation of the error, etc.). V. Mikheyev.

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USSR UDC: 681.3

BOYKOV, V. N., KRENDEL', Yu. M., [redacted], TROFIMOV, O. Ye., SHUL'TS, V. P.

"On Calculating the Precision of Digital Measuring Instruments"

V sb. Teoriya i praktika ispol'z. sredstv tekhn. kibernetiki. Kn. 1 (Theory and Practice in Utilizing the Facilities of Technical Cybernetics--collection of works. Book 1), Novosibirsk, 1970(1971), pp 94-99 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V786)

Translation: The authors consider the effect which improper operation of flip-flops and comparison devices has on the accuracy of a digital device based on the method of binary sweep balancing. In order to explain "in pure form" the nature of the effect which these elements have on the operating precision of the device, a separate analysis is made: for instance, in studying the influence of incorrect flip-flop operation, the comparison device is first assumed as ideal, then real. For the sake of definiteness, distribution of the measured quantity X is assumed to be uniform, and the average modulus of the error is taken as the quality criterion for accuracy of the device. It is noted that all results can be recorded in general form or obtained in the same way for specific distributions of X with the use of many other metrological criteria; e. g., variance or mathematical expectation of the error, etc. V. Mikheyev.

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USSR UDC 51.621.391

RABINOVICH, V. M., TROFIMOV, O. Ye.

"Certain Estimates of the Entropy of Discrete Random Quantities"

Veroyatnostn. Metody v Izmerenii i Kontrole. Vyp. 2. [Probability Methods in Measurement and Testing, No. 2 -- Collection of Works], Novosibirsk, Nauka Press, 1970, pp 63-68 (Translated From Referativnyy Zhurnal Kibernetika, No. 4, April, 1971, Abstract No. 4 V497 by V. Kolchin).

**Translation:** It is proven that if for random quantity $\xi$

$$P\left\{\xi=\frac{i}{n}\right\}=p_i, \quad i=-n, \quad -n+1, \ldots, n; \quad \sum_{i=-n}^{n} p_i=1,$$

$p_i \geq p_{i+1}$ where $i \geq 0$, $p_i \leq 1/2$ and $p_i = p_{-i}$ for all i, then

$$H(\xi) \geq \frac{a^2}{4} \ln n + O\left(\frac{\ln n}{n}\right),$$

$$H(\xi) \geq \frac{2}{3} b^2 \ln n + O\left(\frac{\ln n}{n}\right),$$

where $H(\xi)$ is the entropy of $\xi$, $a=M|\xi|$, $b=D\xi$.

UDC 621.396.621.5

USSR

BYKHOVSKIY, M.A., RABINOVICH, V.S. [Members, Scientific-Technical Society Of Radio Engineering, Electronics, And Communications imeni A.S. Popov]

"Concerning Noise Immunity Of Noncoherent Receiver Of Composite Signals With Non-Orthogonal Components"

Radiotekhnika, Vol 27, No 6, June 1972, pp 16-21

Abstract: With the aid of a Chernov estimate for noncoherent communication systems of "RADA" and "RAKE" types, the noise immunity and the energy losses caused by the non-orthogonal separate components of composite signals are determined. It is shown that with specified values of E, r, and $\rho$ for the system considered (unlike a coherent system), the noise immunity worsens with an increase of the number of components of the composite signals. 3 fig. 9 ref. Received 8 March 1970; after further improvement, 8 July 1971.

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1/2 017 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DISTURBANCE OF THE HEPATIC VENOUS CIRCULATION IN CONDITIONS OF EXTRACORPOREAL CIRCULATION -U-

AUTHOR--RABINOVICH, V.YE.

COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTEZIOLOGIYA, 1970, NR 2, PP 67-71

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER, BLOOD CIRCULATION, HYPOXIA

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/0624
STEP NO--UR/0481/60/000/002/0067/0071

CIRC ACCESSION NO--AP0108839

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--13NOV70

2/2 017

CIRC ACCESSION NO--AP0108839

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MORPHOLOGICAL PICTURE OF DISTRUBANCE OF THE HEPATIC VENOUS CIRCULATION WAS STUDIED IN PROLONGED PROTRACTED FOUR HOUR EXTRACCRPOREAL CIRCULATION EXPERIMENTS WERE CARRIED OUT ON MONGREL DOGS WEIGHING FROM 16 TO 22 KG. A TOTAL OF 21 EXPERIMENTS WERE PERFORMED. THE DATA DERIVED DEMONSTRATE THAT DISTURBANCES OF THE HEPATIC VENOUS CIRCULATION ARE OF HYPOXIC CHARACTER.

FACILITY: LABORATORIYA ISKUSSTVENNOGO ROVOOOBRASHCHENIYA AND LABORATORIYA PATOMORFOLOGII INSTITUTA SERDECHNO SOSUDISTOY KHIRURGII IM. A. N. BAKULEVA AMN SSR, MOSCOW.

UNCLASSIFIED

USSR UDC: 621.396.6:621.318

GERBERG, A. N., LAVROSHCHUK, N. A., RABINOVICH, Ya. D.

"Digital Computer Analysis of Bar Type Permanent Magnets"

Elektron. tekhnika. Nauchno-tekhn. sb. Ferrit. tekhn. (Electronic Technology. Scientific and Technical Collection. Ferrite Technology), 1970, vyp. 2 (24), pp 59-69 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V425)

Translation: By using the equation for the demagnetization curve of a permanent magnet, the authors derive equations for analyzing bar magnet systems made from materials with nonlinear characteristics (cast anisotropic alloys). A method for digital computer solution of these equations is demonstrated. The computational errors are analyzed. Five illustrations, bibliography of eight titles. N. S.

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USSR UDC 532.74

DERYAGAN, B. V., Corresponding Member Academy of Sciences USSR, AORIN, Z. M., LAPUTINA, I. P., RABINOVICH, YA. I., and CHURAYEV, N. V., Institute of Physical Chemistry, Academy of Sciences USSR, and Institute of the Geology of Ore Occurences, Petrography, Mineralogy and Geochemistry, Academy of Sciences USSR, Moscow

"A Study of the Composition of Modified Water by Means of an Electron Probe"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 101-104

Abstract: Samples of modified $H_2O$ that were obtained by condensation of $H_2O$ vapor in quartz, capillaries, on quartz powder, or on plane quartz surfaces were subjected to analysis by means of an electron probe. The content of non-volatile extraneous substances was determined that were isolated by evaporation of the modified $H_2O$ on a Cr surface. The modified $H_2O$ contained one or several of the elements Na, C, K, Cl, S the compounds of which can form true solutions. In cases in which these elements were absent, the modified $H_2O$ contained a sol or gel of silicic acid. The results indicated that the anomalous properties of modified water can be explained without taking recourse

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USSR

DERYAGIN, B. V., et al, Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 101-104

to the hypothesis of formation of polymeric $H_2O$ on quartz surfaces, which was advanced before the presence of impurities in the water in question had been established. To arrive at a definite solution of the problem of a quantitative explanation of the properties of modified $H_2O$, the molecular composition of modified water will have to be investigated. It has been established that $H_2O$ introduced in the liquid state into capillaries did not show a raised content of Si or Na. The raised content of these elements in modified $H_2O$ can be explained by a higher solution capacity of freshly condensed $H_2O$. The authors thank I. I. Belyayeva, V. V. Berezkin, B. V. Zheleznyy, N. N. Zakhavayeva, A. I. Izmaylova, V. V. Karasev, D. S. Lychnikov, M. A. Prusakov, V. Kh. Simonova, V. D. Sobolev, and Ye. N. Khromova for preparing samples and assisting in the experiments.

USSR

UDC 543.226

IVCHENKO, I. N., YALAMOV, Yu. I., and RABINOVICH, Ya. I., Institute of Physical Chemistry, Academy of Sciences USSR, Moscow

"A Theoretical and Experimental Study of the Thermophoresis of Aerosol Particles at Large Knudsen Numbers"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 45, No 3, Mar 71, pp 583-587

Abstract: An expression was derived for the velocity of thermophoresis of small aerosol particles under conditions approaching that of free motion of gas molecules without interference due to the presence of aerosol particles. The expression obtained was in satisfactory agreement with experimental results obtained by B. V. Deryagin and Ya. I. Rabinovich in a study of the thermophoresis of a NaCl aerosol, paraffin oil mist, and tobacco smoke in air under conditions in which the effects of thermal transpiration and gravitational convection were eliminated (Rabinovich, Candidate's Dissertation, Moscow, 1965).

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1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--THERMAL STABILITY OF MODIFIED WATER -U-

AUTHOR-(05)-DERYAGIN, B.V., ZORIN, Z.M., RABINOVICH, YA.I., TALAYEV, M.V.,
CHURAYEV, N.V.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(4), 859-61

DATE PUBLISHED--------70

R

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--WATER, THERMAL STABILITY, DISTILLATION, BOND ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0697 STEP NO--UR/0020/70/191/004/0859/0861

CIRC ACCESSION NO--AT0124369
UNCLASSIFIED

2/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0124369

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE THERMAL STABILITY OF MODIFIED WATER WAS STUDIED BY USING THE METHOD OF DISTN. THROUGH A THERMAL BARRIER (D., 1967). THE RESULTS SHOW THAT THE ANOMALOUS COMPONENT OF THE MODIFIED WATER DECOMPS. TO FORM ORDINARY WATER. THE BOND ENERGY FOR THE MOLS. OF THE ANOMALOUS COMPONENT WAS EVALUATED BY MEANS OF THE BATLER-POLYANI EQUATION (1962) AND FOUND TO BE 50 KCAL-MOLE. THE HIGH THERMAL STABILITY OF THE ANOMALOUS COMPONENT MOLS. EXPLAINS THE STABILITY OF THE MODIFIED WATER, THE PROPERTIES OF WHICH DO NOT CHANGE EVEN DURING PROLONGED STORAGE. FACILITY: INST. FIZ. KHIM., MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0039903 Abstracting Service: CHEMICAL ABST. 4-70 Ref. Code: UR0020

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83434e Dependence of water vapor pressure on the concentration of the anomalous component in modified water. Derjagin, B. V.; Zheleznyi, B. V.; Rabinovich, Yu. I.; Simonova, V. Kh.; Talaev, M. V.; Churaev, N. V. (Inst. Fiz. Khim., Moscow, USSR). *Dokl. Akad. Nauk SSSR* 1970, 191(2), 372-5 [Phys Chem] (Russ). The so-called modified water, defined as a 2-component system, one of which is ordinary water and the other referred to as "anomalous component" of which the nature is unknown for the present, was studied. The anomalous component is less volatile, its diffusion coeff. is smaller, its d. is greater, and its *n* and mol. wt. are appreciably greater than of ordinary water. The mol. wt. of the anomalous component was detd. exptl. as 200 ± 50 and by a method of computation as 180 ± 50. For the present, these values given for mol. wt. are merely tentative upper limit values. The changes observed in modified water upon removal of one of the components are completely reversible. The state of complete modification of water, i.e. a state in which the water is satd. with the anomalous component, is equally reversible; however, the time required for attaining equil. may be several days or even weeks. M. Hoseh

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REEL/FRAME
19741300

USSR R UDC: 541.12.013.5

DERYAGIN, B. V., Corresponding Member Academy of Sciences USSR, ZORIN, Z. M., RABINOVICH, YA. I., TALAYEV, M. V., (DECEASED) and CHURAYEV, N. V., Institute of Physical Chemistry, Moscow, Academy of Sciences USSR

"Thermal Stability of Modified Water"

Moscow, Doklady Akademii Nauk, SSSR, Vol 191, No 4, Apr 70, pp 859-861

Abstract: The authors confirmed the results obtained in preliminary experiments that at temperatures ⩾ 700° modified water (M.W.), which consists of two components -- anomalous component (A.C.) and normal water -- decomposes converting to normal water. Initially changes in expansion of water columns were studied in temperatures of 250 and 400° and both cases gave similar curves, separated in accordance with the temperature difference. Next distillation of the M. W. across a heat barrier was carried out and it was shown that up to 500° no noticeable changes occur. At 700° the condensate looked like normal water, indicating that thermal decomposition of M.W. occurs at t ⩾ 700°. On the basis of their experimental data the authors calculated the bond energy of A.C. molecules to be about 50 kcal/mole.

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Water and Water Treatment

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USSR

UDC 543.3:537.533.35+537.533.73

DERYAGIN, B. V., YEVKO, E. I., KISIN, V. I., LUK'YANOVICH, V. M., RABINOVICH, YA. I., CHURAYEV, N. V., and BARONOVA, R. V., Institute of Physical Chemistry, Academy of Sciences USSR; and Institute of Crystallography imeni A. V. Shubnikov, Academy of Science USSR

"Electron Diffraction Study of Modified Water"

Moscow, Doklady Akademii Nauk SSSR, Vol 208, No 3, 1973, pp 603-605

Abstract: Modified water (m.w.) was prepared by three processes on a quartz film in order to study the "anomalous component" (a.c.), e.g. that part of the m.w. which is nonvolatile at room temperature. The bulk of the sample is amorphous. The polytypic character of the different crystalline modifications of the a.c., seen earlier in electron micrographs and ascribed to impurities of $Na^+$ and $K^+$, was evident in the electron diffraction patterns; in the latter case, however, it could not be correlated with $Na^+$ or $K^+$. It was thus assumed that the crystalline part was composed of different contaminants. The diffraction pattern, autoradiographs of tritiated samples, and electron micrographs are included.

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USSR

UDC 669.046.5

RABINOVICH, Ye. I., VORONIN, A. Ye., and ZBOROVSKIY, A. A.

"Effect of Convective Mixing of the Melt on Oxide Impurities Distribution Along the Height of a Killed Steel Ingot"

Moscow, V sb. "Sovremennyye problemy kachestva stali" (MISiS) (Collection of Works. Modern Problems of Steel Quality) (Moscow Institute of Steel and Alloys) Izd-vo "Metallurgiya," No 61, 1970, pp 54-57

Translation of Abstract: Results are presented of a mathematical analysis of the formation of nonmetallic impurities and their subsequent refining in steel in solidification in a mold. The nature of molten steel convective mixing during solidification and the distribution of oxides along the height of the killed steel ingot are described. 2 figures, 8 references.

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ALESHINA, L. A., VRUBLEVSKAYA, E. L., MOKROV, A. P., RYKOVA, L. L., SHIVRIN, O. N., RABINOVICH, Ye. M., Tula

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"Temperature Dependence of the Process of Formation of a Solid Solution Upon Sintering of Tungsten-Molybdenum Powder Pressings"

Moscow, Fizika i Khimiya Obrabotki Materialov [The Physics and Chemistry of Materials Processing], No 6, Nov-Dec 73, pp 111-117.

Abstract: This article is primarily dedicated to the study of the temperature dependence of sintering and its influence on the formation of a tungsten-molybdenum solid solution. The minimum holding time is established for various temperature modes of sintering. Free molybdenum disappears almost completely after minimum holding (15 minutes) at 1300-2200° C, but a significant quantity of almost pure tungsten is still present. As sintering time and temperature are increased, this W gradually goes over into the solid solution. The effective activation energy of the process is 64,000 cal/mol for the 1300-1600° interval and 76,000 cal/mol for the 1600-1800° interval. The solid solution did not achieve high homogeneity at any of the temperature-time modes used. This was particularly true of the alloy containing 50 wt.% Mo +

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Aleshina, L. A., Vrublevskaya, E. L., Mokrov, A. P., Rykova, L. L., Livrin, O. N., Rabinovich, Ye. M., Moscow, Fizika i Khimiya Obrabotki Materialov, No 6, Nov-Dec 73, pp 111-117.

50 wt. % W. Increasing the temperature for this alloy leads to the formation of concentration heterogeneities. The kinetics of sintering in the surface layer differ from sintering in the volume of a specimen. The surface layers are richer in W.

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USSR

UDC 621.317.743

MELENT'YEV, V. V., RABINOVICH, Yu. I., and SHCHUKIN, G. G.

"Airplane Measurements of Radio Illumination of the Subsurface"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 5 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 5--collection of works) "Nauka," 1972, pp 119-124 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A429)

Translation: Results are given of measurements of the radio intensity temperature of a turbulent sea surface as a function of the sighting angle for horizontal polarization in waves of 0.8, 1.35, 1.6, and 3.2 cm, at various wave heights in the sea and at an airplane altitude of 300 m. The increase in radio intensity temperature with increases in sea-wave height for horizontal polarization is established. Data is also given on airplane measurements of forest and snow cover. It is shown that from measurements of the absolute values of the radio intensity temperature and the polarization characteristics of the subsurface, its structure, temperature, humidity, as well as their distribution in the subsurface layer, can be determined. Four illustrations, bibliography of one.

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USSR

UDC 551.521.2

MELENT'YEV, V. V. and RABINOVICH, Yu. I.

"Radiation Characteristics of Natural Surfaces in the UHF Range"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl. Sekts. 5 (Tenth All-Union Conference on the Propagation of Radio Waves; Report Theses; Section 5--collection of works) "Nauka," 1972, pp 111-118 (from RZh--Radiotekhnika, No 10, 1972, Abstract No 10A383)

Translation: The significance of the radiation characteristics of natural surfaces (water, soil, plant cover, etc.) is noted from the point of view of radar investigations of meteorology, geophysics, and astrophysics. Results are given of computations of the dielectric permeability and the radiation coefficient of smooth fresh-water and sea surfaces for various temperature values, salinities, and wavelengths (0.3-8.5 cm) as well as computations of the radio emission of disturbed sea surfaces under actually observed turbulence conditions. Experiments are described for measuring the emission capabilities of various surfaces; data is given for sand, gravel, concrete, grass, etc.; in particular, the effect of foam and films of kerosene and oil on the radiation of water surfaces is given. One illustration, three tables, bibliography of eight.
N. S.

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methods of radio heat and infrared technique, their advantages and disadvantages are estimated. It is shown that application of microwave radiation gives the unique possibility to study processes occurring between a cloud and the earth from the satellite.

AP9017308

UR/0050

Meteorologiya i Gidrologiya, 1960, Nr 6, pp 10-18

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APPLICATION OF RADIO HEAT LOCATION IN METEOROLOGY

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--AIRCRAFT INVESTIGATIONS OF RADIO BRIGHTNESS CONTRASTS OF THE
UNDERLYING SURFACE -U-
AUTHOR-(04)-RABINOVICH, YU.I., SCHCHUKIN, G.G., MELENTYEV, V.V.,
NOVOSELOV, A.I.
COUNTRY OF INFO--USSR

R

SOURCE--LENINGRAD, AKTINOMETRIYA I OPTIKA ATMOSFERY, 1969, PP 44-46
REFERENCE--REFERATIVNYY ZHURNAL, GEOFIZIKA, SVODNYY TOM, NO 4, 1970, 4B115
DATE PUBLISHED-------69

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--RADIO BRIGHTNESS TEMPERATURE, AIRCRAFT MEASUREMENT,
TEMPERATURE, ICE, WATER, FORESTRY, SURFACE AREA, RADIO EQUIPMENT,
ATMOSPHERE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0302 STEP NO--UR/0000/69/000/000/0044/0046

CIRC ACCESSION NO--AR0126061
UNCLASSIFIED

2/2 023 UNCLASSIFIED

CIRC ACCESSION NO--AR0126061 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AIRCRAFT INVESTIGATIONS WERE USED IN DETERMINING VARIATIONS IN RADIO BRIGHTNESS TEMPERATURE FOR HOMOGENEOUS UNDERLYING SURFACES (WATER, STEPPE, DESERT, ICE, FOREST, ETC.). TEMPERATURE MEASUREMENTS OF WATER SURFACES REVEALED THAT IN THE RANGE LAMBDA EQUALS 3.2 CM THE ATMOSPHERIC EFFECT IS INSIGNIFICANT. FOR EXAMPLE, WITH A CHANGE IN MOISTURE CONTENT FROM 0 TO 60 MM OF PRECIPITABLE WATER THE ATMOSPHERIC CONTRIBUTION TO THE RADIO BRIGHTNESS TEMPERATURE IS 3-6DEGREESK WITH A MEAN VALUE 105-110DEGREESK.

UNCLASSIFIED

The article considers data of aircraft measurements of [illegible] with a four-channel radiometer ($\lambda=0{,}8$; 1,35; 1,6 and 3,2 cm). To determine the total content of water vapour in the clear sky over water surface of the Ladozhsk Lake and the Caspian Sea investigations are carried out over the range $\lambda=1{,}35$ cm. The comparison of the obtained results with the data of theoretical computations shows that a mean relative error is about 15 per cent.

Some prospects of using the methods of radio heat location in meteorology are being examined.

AP 9038943 UR 0050

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Meteorologiya i Gidrologiya, 1969, Nr 7, pp 17-25

# SOME RESULTS OF MEASUREMENTS OF MICROWAVE RADIATION IN THE FREE ATMOSPHERE

K. S. Shifrin, Ya. I. Rabinovich, G. G. Shchukin

AP0019048 INTERNAT. AEROSPACE ABST. 2-70 UR0484

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A70-13371 # BEHAVIOR OF A GYROCOMPASS COMPOSED OF TWO ANGULAR VELOCITY INTEGRATORS DURING ROLLING (POVEDENIE GIROKOMPASA, VYPOLNENNOGO V VIDE DVUKH INTEGRATOROV UGLOVOI SKOROSTI, NA KACHKE).

Yu. I. Rabinovich

*Akademiia Nauk SSSR, Izvestiia, ~~Mekhanika Tverdogo Tela~~*, July-Aug. 1969, p. 48-51. 5 refs. In Russian.

Discussion of the roll behavior of a gyrocompass consisting of two angular velocity integrators installed on the deck of a vessel and interconnected by correction amplifiers. Equations are derived for determining the constant error components of this gyrocompass during a closed conical motion of its base (vessel deck). V.Z.

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19610697

Acc. Nr.: AR0043842

Ref. Code: UR 0000

JPRS 49739

(Abstract: "Determining Surface Water Temperature from Radio Emission in the Centimeter Range," by Yu. I. Rabinovich, G. G. Shchukin and V. V. Melent'yev; Leningrad, Trudy Glavnoy Geofizicheskoy Observatorii, No. 222, 1968, pp. 49-53)

[From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No. 4, 1969, 4B171]

The authors discuss the possibility of aircraft measurements of the water surface temperature in the microwave range, whose use makes it possible to obtain information on the temperature of the underlying surface even in the presence of hydrometeor formations. A method is discussed which at present only makes it possible to make relative measurements, using data on ground measurements of water temperature at individual points along a profile as a tie-in. The results of studies made in Lake Ladoga and the Caspian Sea are given. Comparison of experimental data with ground measurements revealed that the mean square discrepancy is about 2°. Bibliography of 5 items.

Reel/Frame

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Acc. Nr.: AR0043844 R Ref. Code: UR 0000

JPRS 49739

(Abstract: "Study of the Field of Microwave Radiation in the Atmosphere," by K. S. Shifrin, Yu. I. Rabinovich and G. G. Shchukin; Leningrad, Trudy Glavnoy Geofizicheskoy Observatorii, No. 222, 1968, pp. 5-18)
[From: Moscow, Referativnyy Zhurnal, Geofizika, Svodnyy Tom, No. 4, 1969, 4B168]

The authors discuss the advantages of radiometric systems in comparison with currently used infrared equipment for solving a number of meteorological problems. A study was made of the possibility of determining the total moisture content of the atmosphere. The future possibilities of using microwave equipment in meteorology are examined. The use of this wavelength range for solving so-called inverse problems (determining the principal meteorological elements in the atmosphere from measurements made at the upper boundary of the atmosphere from artificial earth satellites) is of the greatest interest.

1 Reel/Frame 19770261 12

USSR UDC 616.24-089.843-092.9-07:616.24-009.4-072.7

KOLESNIKOV, V. D., KIPRENSKIY, Yu. V., RABINOVICH, Yu. Ya., and MALYSHEVA, L. G., Department of Clinical Physiology, and Department of Thoracic Surgery, Institute of Clinical and Experimental Surgery, Ministry of Health USSR, Moscow

"Study of the Ventilation and Mechanics of Respiration of the Replanted Lung Under Experimental Conditions"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 4, Jul/Aug 70, pp 67-71

Abstract: Clinical and x-ray studies were conducted of lung replantation in dogs for a period of one year after the operation. No significant narrowing of the bronchial anastomoses was noted during that period. Spirography, bronchospirography, and analysis of blood gases showed that the functional indices of the replanted lung were close to normal within 3 months after surgery. However, the mechanical properties of the lung were not restored even at the end of the observation period when an increase in alveolar pressure, bronchial resistance, and elasticity and a decrease in distensibility were still noted. These abnormalities are probably attributable to histological changes in the tissues, blood vessels, and bronchial walls, as well as to the formation of adhesions in the pleural cavity surrounding the replanted lung.

1/2 029 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--POLAROGRAPHIC STUDY OF THE ENERGY METABOLISM OF DOG LUNG MITOCHONDRIA IN THE COLD -U-
AUTHOR-(04)-YELISEYEVA, S.V., KOTOVA, YE.N., RABINOVICH, YU.YA., CHECHULIN, A.S.

R

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 191(3), 705-7

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--POLAROGRAPHY, DOG, LUNG, MITOCHONDRION, METABOLISM, RESPIRATION, PHOSPHORYLATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3005/1663 STEP NO--UR/0020/70/191/003/0705/0707

CIRC ACCESSION NO--AT0133568
UNCLASSIFIED

2/2 029

CIRC ACCESSION NO--AT0133568 UNCLASSIFIED PROCESSING DATE--20NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. FRESHLY ISOLATED DOG LUNG MITOCHONDRIA CONSUMED O FOR UP TO 3 DAYS UNDER ALL BASIC METABOLIC CONDITIONS WITH RESPIRATORY CONTROLS (LARDY-WELLMAN) OF THE ORDER OF 2.6. THE ADP-O PHOSPHORYLATION COEFF. FOR SUCCINATE WAS ABOUT 2.7, CONSIDERABLY HIGHER THAN THE P-O PHOSPHORYLATION COEFF. CITED IN EXISTING LITERATURE FOR LUNG HOMOGENATES AND MITOCHONDRIA. PRESERVATION OF THE LUNG AT 2DEGREES FOR 1 DAY DID NOT MATERIALLY AFFECT MITOCHONDRIAL BEHAVIOR, BUT IN 2 DAYS DISTRUBED METABOLISM APPEARED IN THE CHAIN OF ENERGY ACCUMULATION, INDICATED BY DOUBLING OF THE PHOSPHORYLATION TIME, ALTHOUGH THE CAPABILITY FOR PHOSPHORYLATION OF ADDED ADP WAS MAINTAINED. IN 3 DAYS MATERIAL DAMAGE TO PHOSPHORYLATION AND OXIDN. WAS EVIDENT.

FACILITY: MOSK. MED. INST. IM. SECHENOVA, MOSCOW, USSR.

UNCLASSIFIED

USSR

GLUSHKOV, V. M., NIKITIN, A. I., RABINOVICH, Z. L.

"Some Trends in the Development of Structures and Software of Digital Computers"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 79-85 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V594, by the authors).

Translation: Certain trends in the development of the structures and software of digital computers related to the possibility of creation of multiprocessor machines on the basis of new hardware and also to the necessity of supporting their functioning in the collective use mode for the solution of various types of problems are studied.

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RABINOVICH, Z.L.

Cybernetics

GLORIA

SO: JPRS 55937
9 MAY 1972

(All cybernetics)

## EXPERIMENTS IN CLASSIFICATION AND FORMATION OF CONCEPTS

[Article by V. P. Gladun, Ye. P. Popuriy, and Z. L. Rabinovich; Kiev, Kibernetika i Vychislitel'naya Tekhnika, Russian, No 7, 1970, pp 28-32]

Experiments in the classification and formation of concepts were conducted in connection with the construction of a model of the brain as a learning system. The model is a programmed, growing network of neuron-like elements realizing reception, processing, and memorization of signals arriving from the outside medium, and the control of activity determined in the outside medium. Since reliable information concerning information processing in the human brain is still incomplete, each such model [1] realizes some hypothesis of the structure and particular aspects of the operation of the neuron network. We can obviously consider the capability of the model for solving the problem, so far the exclusive prerogative of the human brain, as the criterion of correctness of the adopted hypothesis. The classification and formation of concepts were chosen, from among a number of similar problems, for clarifying the possibilities of the developed model. Since we shall only discuss these problems in what follows, those characteristics of the model not used in their solution will be omitted from this article.

### Description of the Model

The model has receptors capable of grasping signals entering from the outside medium. In problems of the classification and formation of concepts, the objects are represented by a combination of signals, each of which corresponds to one of the characteristics of the object.

The memory elements of the model may be found in one of two states: active or passive, according to which the information is or is not preserved. In the process of perception, a net is formed in the model whose nodes are receptors and active elements. The nodes of this network may have input and output connections. The nodes connected with some node A by its input connections are defined as inferior nodes of node A.

Acc. Nr.: AM0104084

Ref. Code: 4R0000

Glushkov, V. M.; Barabanov, A. A.; Kalinichenko, L. A.; Mikhnovskiy, S. D.; Rabinovich, Z. L.

Computers With Developed Interpretation Systems (Vychislitel'nyye mashiny s razvitymi sistemami interpretatsii) Kiev, 1970, 258 pp (SL:2012)

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1/1

REEL/FRAME
19870477

USSR

UDC 621.791.856:669.715

RABKIN, B. M., IVANOVA, O. N., STEBLOVSKIY, B. A., and BUDNIK, V. P.

"Straight-Polarized DC Welding of Aluminum Alloys"

Kiev, Avtomaticheskaya Svarka, No 3, Mar 71, pp 71-72

Abstract: Welding with straight polarized direct current is of significant interest from the point of view of increasing the fusion capacity of the arc and the possibility of forcing the welding conditions. It is necessary to remove sufficient oxides from the weld metal to obtain a high-quality joint during this welding process. This paper contains the results of an effort at the Institute of Electric Welding to achieve these goals when welding aluminum alloys by a straight polarized DC arc. Helium, argon, and their mixtures were used as shielding gases. It was found that straight polarized DC welding of aluminum alloys in helium without filler wire gives an even, bright surface. Good protection of the weld metal was insured by A-954 and A-1272 torches. High-quality welds were obtained with aluminum alloys 3, 8, 10, 15, and 20 mm thick in one pass without toe dressing.

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USSR

UDC 621.791.754

RABKIN, D. M., Doctor of Technical Sciences, ISHCHENKO, A. YA., Candidate of Technical Sciences, IGNAT'YEV, V. G., Candidate of Technical Sciences, LOZOV-SKAYA, A. V., Candidate of Technical Sciences, SAYENKO, M. I., Engineer, Electric Welding Institute imeni Ye. O. Paton of the Academy of Sciences UkrSSR, KOZLOVSKAYA, V. P., Candidate of Technical Sciences, and IODA, M. V., /expansion unknown/

"Influence of Admixtures on the Mechanical Properties of Joints of 1201 Aluminum Alloy"

Kiev, Avtomaticheskaya Svarka, No 7(244), Jul 73, pp 53-55

Abstract: Mechanical test results of joints of aluminum alloys, 1201 type (0.15% Fe, 0.12% Si) and 01203 type (0.003% Fe, 0.02% Si), are discussed by reference to curves of the effect of temperature on the strength of the initial metal and the joint and of the effect on the relative elongation of the initial metal. The decrease of the total Fe and Al content to 0.06% in alloys of Al-Cu type improves the mechanical properties of the initial metal and of welded joints at normal temperature. The relative elongation, impact ductility, and the angle of bend of the initial metal and of joints of 01203 alloy are $\sim$ 1.5 times higher than on 1201 alloy. The mechanical properties of both alloys

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USSR

RABKIN, D. M., et al., Avtomaticheskaya Svarka, No 7(244), Jul 73, pp 53-55

improve with decreasing temperature. At liquid He temperature, the resistance to rupture of the initial metal and of joints of 01203 alloy are somewhat higher than on 1201 alloy and the relative elongation of the initial metal is two times higher. Three figures, one table, four bibliographic references.

USSR

UDC 621.791.85:669.715

RABKIN, D. M., VOROPAY, N. M., and BONDAREV, A. A., Institute of Electric Welding imeni Ye. O. Paton

"Special Features of Electron-Beam Welding of Aluminum Alloys"

Kiev, Avtomaticheskaya Svarka, No 2, Feb 71, pp 48-52

Abstract: A study was made of the characteristics of electron-beam welding of aluminum alloys as done on the U-3M machine using the SP-30 power supply. Also investigated were the effect of the process parameters on the type of alloy, the characteristics and structure of welds of typical aluminum alloys, and the development of optimal modes and techniques for the welding process. The specimens for the experimentation were plates made of ADO, AMg6, AMg6N, D20-1, ATsM, and V95 alloys. The parameters of each specimen are given in a table. The V95 specimens were welded in their annealed state after tempering and artificial aging; the ADO, AMg6, and D20-1 specimens were welded with a wire of the same chemical composition as the original metal; and both the V95 and ATsM alloys were welded with no additives. The test results indicate that electron-beam welding results in high structural strength and that the strength of the weld increases with increasing welding speed.

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USSR UDC: 621.791.856.3.011

RABKIN, D. M., and RYABOV, V. R., Institute of Electric Welding imeni Ye O. Paton, Academy of Sciences Ukrainian SSR; YEREMENKO, V. N., LESNIK, N. D., and PESTUN, T. S., Institute of Problems of Material Science, Academy of Sciences Ukrainian SSR

"Surface Phenomena in Welding Aluminum Directly to Armco Iron"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

Abstract: The behavior of liquid aluminum with respect to solid iron is of great theoretical interest for a number of metallurgical processes. This study concerns the effect of temperature-time conditions on the spreading of aluminum over iron and the intermetallide phases $Fe_3Al$, $Fe_2Al_5$, $FeAl_3$. The kinetics of spreading was analyzed in vacuum ($1-3\cdot10^{-5}$ mm Hg at maximum temperatures of the experiment) using filming and telescopic lens photography for recording the process. Use was made of AV-000 (99.99% Al) and armco iron. Considered were the possible mechanism for contact interaction of liquid aluminum with iron and the conditions for producing welded joints of

USSR

RABKIN, D. M., et al, Avtomaticheskaya Svarka, No 11, Nov 70, pp 20-23

iron with aluminum with a minimum interlayer of brittle intermediate phases. Wetting was found to improve with temperature. Quality welding of armco iron with aluminum is achieved by minimum contacting time of iron with its melts and high dissolution rate of iron in aluminum.

USSR UDC 621.791.756:669.715

RABKIN, D. M., ISHCHENKO, A. Ya., SINCHUK, A. G., Institute of Electric Welding imeni Ye. O. Paton and PORTNOY, N. D., KUKLINA, S. S., and BARANOV, A. V., Ural Railroad Car Plant imeni F. E. Dzerzhinskiy

"Electroslag Welding of Large-Cross-Section Pressed Profiles From AMg6 Alloy"

Kiev, Avtomaticheskaya Svarka, No 12, Dec 70, pp 52-54

Abstract: A description is given of the process of electroslag welding of large-dimensioned rings made of AMg6 aluminum alloy. The process was developed by the two institutions of which the authors named above are members, working in collaboration, and has been put into production. The weldings were from plane electrodes made of the AMg6 alloy (GOST standard 4784-65) and SvAMg7 alloy (GOST 7871-63). This method of welding is said to be the most convenient for short seams on large-dimensioned specimens, offering the advantages of high productivity, reduced difficulties in production, reduced expenditures of electrical energy and auxiliary materials, and improved working conditions for employees. A table gives the compositions of the AMg6 and SvAMg7 alloys.

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1/2 036 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THE PECULIARITIES OF TECHNOLOGY OF ARC WELDING OF THE ALUMINUM ALLOYS IN ARGON AT ELEVATED PRESSURE -U-

AUTHOR-(03)-KARAMYAN, R.S., VOROPAY, N.M., RABKIN, D.M.

COUNTRY OF INFO--USSR

R

SOURCE--MOSCOW, SVAROCHNOYE PROIZVODSTVO, NO 1, 70, PP 11-15

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ALUMINUM ALLOY, ARGON GAS WELDING, BIBLIOGRAPHY, INERT GAS ARC WELDING, HIGH PRESSURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/2042 STEP NO--UR/0135/70/000/001/0011/0015

CIRC ACCESSION NO--AP0118996

UNCLASSIFIED

2/2 036

UNCLASSIFIED

CIRC ACCESSION NO--AP0118996 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY WAS MADE OF THE PROBLEMS DEALING WITH TECHNOLOGY, TECHNIQUES, AND EQUIPMENT USED IN THE PROCESS OF WELDING OF ALUMINUM ALLOYS IN A CONTROLLED ATMOSPHERE AT ELEVATED PRESSURE BY NONCONSUMABLE AND CONSUMABLE ELECTRODES. FACILITY: INSTITUTE OF ELECTRICAL WELDING IMENI YE. O. PATON OF THE ACADEMY OF SCIENCES UKRAINIAN SSR.

UNCLASSIFIED

1/2 040 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--EFFECT OF THE CONSTRUCTION OF JOINTS IN ALUMINIUM ALLOYS ON CRACK FORMATION DURING WELDING -U-

AUTHOR--RABKIN, D.M.

R

COUNTRY OF INFO--USSR

SOURCE--AVTOMAT. SVARKA, JAN. 1970, 23(1) 73-74

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--CRACK PROPAGATION, ALUMINUM ALLOY, ALUMINUM WELDING, CRYSTAL STRUCTURE, METAL ROLLING, WELD JOINT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1213 STEP NO--UR/0125/70/023/001/0073/0074

CIRC ACCESSION NO--AP0107689

UNCLASSIFIED

2/2 040

CIRC ACCESSION NO--AP0107689 UNCLASSIFIED PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIVE MERITS OF A NUMBER OF DIFFERENT WAYS OF CONSTRUCTING JOINTS IN AL ALLOY STRUCTURES (T JOINTS, FLANGE JOINTS, ETC.) SO AS TO MINIMIZE THE DANGER OF CRACK DEVELOPMENT DURING SUBSEQUENT WELDING ARE DISCUSSED. SOME APPARENTLY FEASIBLE TECHNIQUES ARE REJECTED ON ACCOUNT OF THEIR SEVERE SUSCEPTIBILITY TO WELDING CRACKS. IN CHOOSING THE BEST METHOD, ACCOUNT MUST BE TAKEN OF THE MICROSTRUCTURE OF THE ALLOY AS CONDITIONED, E.G., BY PRELIMINARY ROLLING (PREFERENTIAL GRAIN ORIENTATION, ETC.).

UNCLASSIFIED

R

USSR UDC 621.791.754.293.011:669.71

KARAMYAN, R. S., Engineer, VOROPAY, N. M., Candidate of Technical Sciences, RABKIN, D. M., Doctor of Technical Sciences, Institute of Electric Welding imeni Ye. O. Paton

"Features of the Process of Arc-Welding Aluminum Alloys in Argon Under Elevated Pressure"

Moscow, Svarochnoye Proizvodstvo, No 1, Jan 70, pp 11-15

Abstract: Specimens of the AMg6 aluminum alloy were arc-welded in a protective atmosphere of argon under a pressure higher than atmospheric pressure to determine optimal conditions for this method of welding. It was found that before the welding chamber is filled with argon, it should be evacuated to about $(2--3).10^{-2}$ mm Hg. Use of transformers with increased no-load voltage (up to 120 v) ensures reliable starting and burning of the arc at an argon pressure of 2--6 atm without decreasing the arc gap. The depth of weld penetration and the effective thermal power of the arc increase, and the zone of thermal effect becomes narrower, with the increased pressure of inert gas. Use of

USSR

KARAMYAN, R. S., et al., Svarochnoye Proizvodstvo, No 1, Jan 70, pp 11-15

controlled atmosphere of argon under elevated pressure in welding of aluminum alloys inhibits the development of pores in the crystallizing metal. Moreover, the mechanical properties and the density of welds increases, and their chemical composition approaches that of the parent metal. This welding method is recommended for joining cast aluminum parts, and for small articles made of alloys containing easily vaporizing elements.

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USSR

UDC 621.791.72:621.9-536.546.621

BONDAREV, A. A., VOROPAY, N. M., RABKIN, D. M., Ye. O. Paton Electric Welding Institute, STEPANOV, V. F., POSTNIKOV, V. P., Moscow Oblast

"Cathode Ray Welding of Spherical Containers of Aluminum Alloys"

Kiev, Avtomaticheskaya Svarka, No 5, May 1972, pp 44-47

Abstract: The features of cathode ray welding of vacuum tight joints were studied as applicable to spherical containers of AMG6 and D20-1 aluminum alloys. Welded joints produced at the optimal welding modes showed no pores, cracks or other defects. The β phase was finely and evenly dispersed. In contrast to argon-arc welding, the near-seam zone had practically no areas of recrystallization with enlarged base-metal grains. The mechanical properties of joints produced by cathode ray welding were universally superior to those produced by argon-arc welding. The stability of the results of mechanical tests was high; the strength factor of the joints was greater than with argon-arc welding.

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USSR

UDC 621.791.72.019:546.621

BONDAREV, A. A., VOROPAY, N. M., ISHCHENKO, A. Ya., RABKIN, D. M., Ye. O. Paton Electric Welding Institute

"Influence of Technological Factors on Porosity of Seams in Aluminum, Produced by Cathode Ray Welding"

Kiev, Avtomaticheskaya Svarka, No 8, Aug 1972, pp 24-26.

Abstract: This work studies the influence of various technological factors on the porosity of seams produced by cathode ray welding of the alloys AMg6 and D20-1. The hydrogen content in the base metal was 0.86 and 0.23 $cm^3$/100 g respectively. Experimental production batches of AMg6 with various hydrogen contents were also studied. It was found that seam porosity was determined by welding rate, spatial position of the joint, initial hydrogen content in the base and welding materials and method of material treatment before welding. Under identical welding conditions, series-produced AMg6 alloy is more inclined to pore formation than D20-1 alloy, a result of its higher content of hydrogen and intensive evaporation of magnesium. Porosity can be decreased or eliminated by removal of the surface film from the base metal and welding material, increasing the welding speed and decreasing the hydrogen content in the base metal.

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027

UNCLASSIFIED

TITLE--DRIP INFUSION CHOLEGRAPHY -U-

PROCESSING DATE--09OCT70

AUTHOR-(03)-RABKIN, I.KH., BARMIN, V.S., SUKHOMLINA, R.A.

COUNTRY OF INFO--USSR

SOURCE--KHIRURGIYA, 1970, NR 2, PP 54-60

DATE PUBLISHED-------70

R

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LIVER FUNCTION, RADIOLOGY, IMAGE CONTRAST, INSULIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/1731

STEP NO--UR/0531/70/000/002/0054/0060

CIRC ACCESSION NO--AP0103495

UNCLASSIFIED

2/2 027

CIRC ACCESSION NO--AP0103495 UNCLASSIFIED PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS SET FOR THE RESULTS AND DISCUSS THE SHORTCOMINGS OF ROUTINE METHODS OF PERORAL CHOLECYSTOGRAPHY WITH BILITRAST AND INTRAVENOUS CHOLEGRAPHY WITH BILIGNOST IN 418 PATIENTS. AN ANALYSIS IS GIVEN OF THE TECHNIQUE OF DRIP INFUSION CHOLEGRAPHY CARRIED OUT IN 86 PATIENTS, WHICH INVOLVES A MORE SPARING PRINCIPLE AND IS BASED ON GREATER SATURATION OF THE HEPATIC PARENCHYMA AND BETTER CONTRASTING OF THE BILE DUCTS. THERE WERE NOTED A DECREASED NUMBER OF NEGATIVE RESULTS OF THE INVESTIGATION AND A REDUCED INCIDENCE OF ALLERGIC REACTIONS, THIS ENABLING TO EMPLOY THIS TECHNIQUE WITHOUT COMPLICATIONS EVEN IN PATIENTS WITH A WEAK POSITIVE REACTION TO IODINE. MENTION IS MADE OF THE POSSIBILITY OF COMBINING THIS TECHNIQUE WITH PERORAL CHOLECYSTOGRAPHY, ADMINISTRATION OF INSULIN, THUS EFFECTING BETTER CONTRASTING OF THE BILE DUCTS.

UNCLASSIFIED

USSR

UDC 621.318.5

Dr. of Physico-Mathematical Science RASKIN, L.I., Engineers LEYZAN, L.I., SHUL'MAN, S.M., VASIL'YEV, A.S.

"Relay Based On Magneto-Controlled Contacts With Use Of Ferroelast"

Moscow, Pribory i sistemy upravleniya, No 11, Nov 1971, pp 32-33

Abstract: It is concluded that Type FNTs ferroelast is a promising magneto-dielectric material which will find wide use in switching technology, particularly in relays based on magneto-controlled contacts. The parameters of Type FNTs-17 ferroelast are presented. Use of ferroelast makes it possible to increase the sensitivity of the relay, to decrease its dimensions and consumable power. Subsequent work must be conducted in the direction of increasing the thermal stability, the insulation strength, and improvement of the magnetic and elastic properties of the ferroelast which in addition will make it possible to expand the range of its application. 6 ref. 1 fig. 2 tab.

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USSR

UDC: 621.318.435.3

GORYACHEV, N. P., KOBLENTS, Ya. G., MORSHAKOV, V. A., RABKIN, L. I.,
EPSHTEYN, B. Sh., YAKOVENKO, D. A.

"A Noncontact, Magnetically Controlled Diode"

V sb. Novyye beskontaktn. elektron. ustroystva. Ch. 1 (New Noncontact Electronic Devices--collection of works. Part 1), Moscow, 1970, pp 26-31 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 11, Nov 70, Abstract No 11A26)

Translation: The authors present the characteristics and describe some designs of ferrods whose principle of operation is analogous to that of a transformer with magnetization. A closed ferrod on a frame core made up of two L-shaped plates with a nonferromagnetic gap has low scatter of the output characteristics and high sensitivity. A ferrod designed on the basis of using a permanent magnet has inverse characteristics. A device with similar characteristics is a magnetically controlled diode designed around a standard ferrite bead with rectangular hysteresis loop located in the opening of a metallic magnetic circuit. Six illustrations, bibliography of four titles. Yu. Kh.

1/1

USSR

UDC 539.376+532.135

VINOGRADOV, O. G., RABKIN, M. A.

"On the Dynamic Similarity of Viscoelastic Bodies"

V sb. Dinamika gidrotekhn. sooruzh. (Dynamics of Hydroengineering Structures -- Collection of Works), Moscow, 1972, pp 27-30 (from RZh-Mekhanika, No 3, Mar 73, Abstract No 3V538)

Translation: Conditions for the dynamic similarity of two viscoelastic bodies making harmonic oscillations are obtained by the application of the correspondence principle, i.e., by the substitution of elastic constants in the similarity conditions for elastic bodies with complex frequency functions. I. I. Gol'berg.

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USSR

UDC 534

RABKIN, M. A., All-Union Scientific Research Institute of Hydraulic Engineering imeni Vedeneyev (Leningrad)

"Concurrent Flexurotorsional Oscillations of Multidisk Rotors"

Kiev, Prikladnaya Mekhanika, Vol 9, No 3, Mar 73, pp 96-102

Abstract: The stabilized flexurotorsional oscillations of a uniformly revolving unbalanced rotor, subjected to the action of external periodic torques, are discussed with the aim of evaluating the coherence factor upon the dynamic characteristics of the rotor. The solution of the obtained system of quasi-linear differential equations is sought by means of the Poincaré method of the small parameter. The existence of a flexural resonance, a torsional resonance, and a flexurotorsional resonance is established. Formulas are derived for calculating the amplitudes, as well as for evaluating the degree of coherence of the oscillations in the case of flexural resonance. An example of the calculation is presented, and its results are analyzed. 2 figures. 6 references.

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USSR

SARAFANOV, I. S., ANAGORSKIY, L. A., RABKIN, M. A. UDC 621.357:621.79.027

"Potential Distribution in the Electrolyzer Circuit"

V sb. Novoye v elektrofiz. i elektrokhim. obrabotke materialov (What's New in Electrophysical and Electrochemical Treatment of Materials -- collection of works), Leningrad, Mashinostroyeniye Press, 1972, pp 102-106 (from RZh-Khimiya, No 12, Jun 72, Abstract No 12L310)

Translation: Mathematical expressions were obtained for calculating the basic electrical parameters of the electrolyzer circuit for heating metals in an electrolyte. They permit determination of the voltage drop in various parts of the circuit and selection of the most advantageous conditions for machining parts with different shape and also determination of the specific resistance of the gas layer occurring at the cathode.

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USSR

RABKIN, V. B., [redacted] KOZLOVA, R. F.

UDC 621.762.669.018.5(088.8)

"Cermet Alloy Based on Molybdenum"

USSR Author's Certificate No 309062, filed 27 Nov 69, published 15 Sep 71, (from RZh—Metallurgiya, No44, Apr 72, Abstract No 4G419P)

Translation: A cermet alloy is proposed for junctions with ceramics in electrovacuum device assemblies. In order to achieve a coefficient of thermal expansion of the alloy equal to the coefficient of thermal expansion of aluminum oxide ceramic, the alloy components are taken in the following ratio: 36–40% Cu, 6–7% Ni, and the rest Mo.

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UNCLASSIFIED

PROCESSING DATE--30OCT70

-- OF THE HYPOPHYSIS IN THE STIMULATION OF ANABOLIC PROCESSES IN NORMAL RATS AND IN THE ANIMALS TREATED WITH METHYLTHIOURACIL -U-

AUTHOR-(02)-RABKINA, A.YE., POPOV, A.P.

COUNTRY OF INFO--USSR

R

SOURCE--PROBL. ENDOKRINOL. 1970, 16(2), 73-8

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--PITUITARY GLAND, METABOLISM, BODY WEIGHT, HORMONE, ORGANIC SULFUR COMPOUND, URACIL, THYROID GLAND, REPRODUCTIVE SYSTEM, SOMATOTROPHIC HORMONE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0294

STEP NO--UR/0502/70/016/002/0073/0078

CIRC ACCESSION NO--AP0120983

UNCLASSIFIED

CIRC ACCESSION NO--AP0120983 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. NEROBOLYL (NORANDROSTENOLONE) ADMINISTERED AT 1 MU G-100 G DAILY FOR 1 AND 2 WEEKS INCREASED THE BODY WT. OF INTACT RATS AND OF THOSE WITH METHYLTHIOURACIL BLOCKED THYROID GLANDS. NEROBOLYL DECREASED THE NO. OF ACIDOPHILIC CELLS IN THE HYPOPHYSIS OF ATHYROID RATS, INCREASED THE AMT. OF INTACT RATS, AND DECREASED THE NO. OF BASOPHILIC CELLS IN BOTH GROUPS. NEROBOLYL SOMEWHAT INCREASED THE WT. OF THE HYPOPHYSIS, SEMINAL VESICLES, AND PROSTATE, AND DECREASED THE WT. OF THE THYMUS. AN INCREASED AMT. OF STH (SOMATOTROPHIN) PRODUCING ACIDOPHILS DEVELOPING UNDER THE REACTION OF NEROBOLYL SUGGESTS THAT ENDOGENOUS STH PARTICIPATES IN THE MECHANISM OF ANABOLIC STEROID ACTION. FACILITY: LAB. EKSP. MORFOL., INST. EKSP. ENDOKRINOL. KHIM. GORMON., MOSCOW, USSR.

UNCLASSIFIED

USSR

RABODZEY, A.G., KRAPIVINA, L.A. UDC 621.318.2:621.385.632

"Magnets Of Platinum-Cobalt Alloy For Periodic Focusing Systems Of TWT"

Elektron.tekhnika. Nauch.-tekhn.sb. Elektron. SVCh (Electronics Technology. Scientific-Technical Collection. Microwave Electronics), 1971, Issue 7, pp 77-85 (from RZh--Elektronika i yeye primeneniye, No 11, Nov 1971, Abstract No 11A162)

Translation: The manufacturing processes are described for platinum-cobalt alloy magnets intended for the magnetic periodic focusing systems of traveling-wave tubes. After heating to 80 and 150° C, the irreversible reduction of the induction of these magnets from the values of the demagnetization factor and from the magnetic properties of the magnets is investigated. The magnetic properties are determined of platinum-cobalt alloy magnets intended for magnetic periodic focusing systems operating at temperatures to 140° C; the residual induction is 5800--6300 gauss of coercive force with respect to an induction of 4400--5000 oersted.

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9 (4)

SOV/19-59-12-202/277

AUTHOR: Rabodzey, N. V.

TITLE: A Method of Evaluating the Mechanic Strength of Electric Vacuum Instruments

PERIODICAL: Byulleten' izobreteniy, 1959, Nr 12, p 45 (USSR)

ABSTRACT: Class 42k, $46_{01}$. Nr 120671 (585378/25 of 31 Oct 1957)

Determining the mechanical strength of electric vacuum instruments in vibration and impact tests by comparison of the self-resonant frequency spectrum of the instrument before and after the test. The change of the resonance frequency will indicate the progress of the destruction processes in the instrument.

Card 1/1

USSR

UDC: 621.391.19

ZAYEZDNYY, A. M., PLOTKIN, Ye. I., RABOTKIN, O. N., TRAKHTMAN, V. Yu., SIROTA, O. L.

"A Speech Recognition Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 18, 1970, Author's Certificate No 271921, Filed 17 Mar 69, p 117

Abstract: This Author's Certificate introduces a speech recognition device which contains an analyzer, a decision unit, and a logical processing unit. As a distinguishing feature of the patent, the reliability of speech pattern recognition is improved by adding a phase coordinate shaping circuit and a boundary hypersurface simulation unit connected in series. The inputs of the phase coordinate shaping circuit are connected to the inputs and outputs of the analyzer, while the outputs of the boundary hypersurface simulation unit are connected to the inputs of the decision unit.

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USSR

RABOTKIN, O. N.

UDC: 621.391.81

"Signal Separation in Accordance With the Localized Numerical Characteristics of the Signal Phase Trajectories"

V sb. Materialy Nauch.-tekhn. konf. Leningr. elektrotekhn. in-t svyazi. Vyp. 1 (Materials of the Scientific and Technical Conference of Leningrad Electrical Engineering Institute of Communications--collection of works, No 1), Leningrad, 1971, pp 6-11 (from RZh-Radiotekhnika, No 3, Mar 72, Abstract No 3A56)

Translation: The paper deals with the problem of using localized numerical characteristics of signal phase trajectories represented by a structural model in problems of signal separation. A signal separation algorithm is found. A block diagram of a reception device is given and its interference immunity is evaluated. Resumé.

1/1

Acc. Nr: AP0047352

Ref. Code: UR0589

PRIMARY SOURCE: Vestnik Khirurgii imeni I. I. Grekova, 1970,
Vol 104, Nr 1, pp 54-61

## SURGICAL TREATMENT OF ANGINA ABDOMINALIS

A. V. Pokrovskiy, *B. I. Bragin, V. S. Robolnikov* and *D. M. Tsireshkin*

The paper deals with the problems of diagnosis and surgical treatment of the abdominal ischemic syndrome. The authors have observed 24 patients with angina abdominalis in investigation of 281 patients with atherosclerotic occlusion of the abdominal aorta and its branches. Eight patients with angina abdominalis were operated upon with one lethal issue. It is considered that: 1) the established diagnosis of angina abdominalis is an indication to surgical therapy; 2) the approach — median laparotomy in extravasal compression of the celiac artery, left — sided thoracolaparotomy in all other cases; 3) an end-to end distal anastomosis in reconstructive operations seems to be more rational, it is more advantageous hemodynamically; 4) recognition and surgical treatment of angina abdominalis in due course eliminating ischemia enabled to avoid lethal intestinal infarction.

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"Levels of Even-Even Nuclei With High Moments in the Phenomenological Collective Model of the Nucleus"

Moscow, Yadernaya Fizika, Vol 15, No 3, Mar 72, pp 470-473

Abstract: The energies of levels of even-even nuclei are calculated for angular momenta up to and including $J = 12$ within the framework of the phenomenological collective model of the atomic nucleus with potential energy depending on the deformation variables $\beta$ and $\gamma$. It was found that the relative energies of the levels of the base rotational band for the given class of potentials are always greater than for a spherical nucleus. The levels of the spherical nucleus which correspond to the highest moment $J = 2N$ for the principal quantum number $N = 2n + \lambda$ make a transition to levels of the base rotational band with $E(J) \sim J(J+1)$ as deformation appears and increases. The theoretically permissible region of values of $\varepsilon_1(J)$ with a given $\varepsilon_1(4)$ is fairly narrow for $\varepsilon_1(4) \leq 2.5$, and the relation between $\varepsilon_1(J)$ and $\varepsilon_1(4)$ is linear with a fair degree of accuracy; then there is a sharp widening of

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this region which is more pronounced the larger the angular momentum. A comparison with experimental data shows satisfactory agreement. The authors thank V. V. Bulychev and T. I. Stavinskaya for assistance with the computer calculations. One figure, bibliography of twelve titles.

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Composite Materials

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"Creep Testing of Reinforced Polymers"

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Abstract: The characteristics of reinforced polymer materials are considered in developing new test methods and new standards for creep testing them under a constant load. For orthogonally reinforced polymers, with an ordered orthotropic structure, it is advantageous to use the directions coinciding with fiber orientations and at an angle of 45° to the fibers. For tensile creep testing of samples, cut an any angle to the reinforcing fibers, it is required that the side pressure external to the working part be protected from being torn from the holding clamps while at the same time making sure that there is not distortion of the deformation properties of the plastics from an instantaneous concentration of stresses. For compressive creep testing it is best to use samples in the form of a right parallelepiped with a square base with one side corresponding to the thickness of the plastic and a height at least four times that of the thickness. Pictures are shown of stands for the compressive and tensile creep testing of composite materials at room conditions. Two figures, nine bibliographic refernces.

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